FINAL

State of California
Department of Water Resources
State Water Resources Control Board
Department of Health Services

2002 RECYCLED WATER TASK FORCE
MINUTES OF
19 NOVEMBER 2002 MEETING

Meeting Time and Location

9:00 am-2:00 pm, 19 November 2002, South Ballroom B, Disneyland Hotel, 1150 Magic Way, Anaheim, California.

Attendance

Task Force Members:

Rich Atwater	Earle Hartling	Jonas Minton
Kirk Bone	Rex Hime	Mansour M. Nasser
Jerry D. Brown	Keith Israel*	Frances Spivy-Weber
Dan Carlson	Richard Katz	William T. VanWagoner
Bob Castle	Luana Kiger	Muriel Watson
Ane D. Deister	Keith Lewinger	Bob Whitley
William R. Everest	Gary R. Lynch	John B. Withers
Kathy Fletcher	Rick Martin	Patrick Wright

*Via telephone

Task Force Substitutes:

Sabine Arweiler for Denise L. Kruger
Jack Miller for Gary Erbeck
Meena Westford for William Steele

Task Force Members Absent:

Takashi Asano	Darryl G. Miller	R. K. Spackman
Herman C. Collins	Tom Morrison	David P. Spath
Karen Furst	Phillip J. Pace	David R. Williams
Steve Hall	Tim Ramirez	Marguerite Young
	Steve Shaffer	

Facilitator:

H. Eric Schockman

State Staff and Members of Public:

51 Persons (See attachment for complete list)

Summary of Proceedings

A. Self-Introduction and Welcome Remarks

After self-introductions by all attendees, Jonas Minton opened the meeting as acting Chair until Richard Katz, Chair of the 2002 Recycled Water Task Force, arrived.

B. Approval of Meeting Minutes

Submittal of the 12 September 2002 Task Force meeting minutes was deferred until the next meeting.

C. Task Force General Business

Fawzi Karajeh noted that the next meeting date is 10 January 2003 in Sacramento. He explained the strategy for the Task Force. Draft white papers were distributed to the Task Force at the meeting. Comments will be received during the meeting and the coming two weeks for revision of the white papers into stand-alone documents. The recommendations from the white papers will be distilled for presentation and discussion at the 10th January meeting.

D. WateReuse Foundation

Ron Young, Chairman of the WateReuse Foundation gave a presentation about the foundation, its activities, and potential involvement with the Task Force. His slides are attached.

E. White Paper Presentations

Draft white papers for all six workgroups were distributed during the meeting.

Ane Deister reviewed the content of the draft white paper for the Public Information, Education, and Outreach Workgroup, which is summarized in the attached slides she presented.

Muriel Watson, representing Revolting Grandma's, was asked for her observations at this point in the Task Force deliberations. She expressed concern for the safety of recycled water. She said that she perceived that water recycling project proponents used public education programs to lead the public to accept a project rather than conveying the facts to the public to allow the public to draw its own conclusions. She noted the failures of technology despite the assurances and best intentions of technical experts. Her conclusion was that nonpotable uses were acceptable and should be promoted to use our water wisely, but felt that indirect potable reuse would be potentially acceptable provided the local conditions were appropriate. She also noted that alternatives to water reuse were available and should also be promoted, such as seawater desalination or the use of salt water for flushing toilets, as on Catalina Island.

Karajeh substituted for Takashi Asano, Chair of the Science and Health/Indirect Potable Reuse Workgroup, in presenting the content of the draft white paper of the workgroup. His slides are

attached. Minton proposed a field trip by Task Force members to groundwater recharge sites to observe indirect potable reuse in action. Gary Lynch expressed concern that the white paper appeared to be promoting a research proposal by the University of California, Davis, without presenting other options for conducting research.

Peer Swan observed that the increasing restrictions on the discharge of treated wastewater into streams seemed at odds with promoting its reuse in school yards. This sent a mixed message to the public. He also noted that ten percent of water in the Delta is from wastewater discharges upstream, which is then used for recreation and other uses.

Bob Hultquist presented the draft white paper of the Plumbing Code/Cross Connection Control Workgroup. Earle Hartling then proposed to the Task Force that the workgroup recommendation that its draft Appendix J be adopted as part of the California Plumbing Code be approved by the Task Force immediately so state agencies could begin the review and adoption process before the conclusion of the Task Force. The recommendation is described on page 3 of the 15 November 2002 draft. During discussion it was noted that a wide spectrum of viewpoints were represented in the workgroup that came to agreement on the language of the draft Appendix J. **The Task Force adopted the recommendations to propose that a California version of Appendix J be incorporated in the California Plumbing Code and that the Department of Water Resources begin the review and adoption process using the proposed language in the white paper.**

Bill Jacoby summarized the draft white paper of the Funding/CALFED Coordination Workgroup using the attached slides. Swan noted that much indirect reuse is currently taking place of discharged treated wastewater being diverted downstream. He said that emphasis in funding programs should be placed on recovering wastewater being discharged into the ocean or salt sinks, where the water is lost to further reuse, rather than on reuse of effluent that would be discharged inland.

Richard Mills substituted for the Chair, John Morris, and Co-chair, Nancy Lee, of the Economics Workgroup in presenting this workgroup's white paper, which was distributed during the meeting.

The Regulations and Permitting Workgroup draft white paper was described by Kathy Fletcher, Chair of the workgroup, who provided an overview and a description of the jurisdictional conflicts section. Bob Castle gave a presentation on uniform statewide recycled water criteria. Kirk Bone described the incidental runoff issue being addressed in the white paper. Jerry Brown described the permitting procedures section of the white paper. Their slides are attached. Bill Everest described the water softener issue, noting that an expert presentation was given during the last Task Force meeting by Norris Brandt.

Jack Miller provided a proposal by the California Conference of Environmental Health Directors for a state certification program for state and local health officials responsible for reviewing facilities and enforcing public health laws related to recycled water.

F. Public Comment

Public comments were provided during the above deliberations.

G. Future Meetings and Strategy

Katz stated that the objective for the January meeting is to have final white papers and recommendations and to begin to prioritize the recommendations. He would like the Task Force to single out the top four or five recommendations that require legislative action to propose to the Legislature. He also suggested following up on the proposal for a field trip in January.

2002 RECYCLED WATER TASK FORCE
ATTENDEES AT 19 NOVEMBER 2002 MEETING

Suzanne Arena	San Francisco Public Utilities Commission
Sabine Arweiler	Southern California Water Company, Customer Service Region II
Rich Atwater	Inland Empire Utilities Agency
Harold Bailey	Padre Dam MWD
Kirk Bone	Serrano Associates LLC
Jerry D. Brown	Contra Costa Water District
Royall Brown	RACOON
Dan Carlson	Utilities Department, City of Santa Rosa
Richard Carlson	San Diego County Department of Environmental Health
Scott Carr	San Elijo Joint Powers Authority
Bob Castle	Marin Municipal Water District
Ane D. Deister	El Dorado Irrigation District
Richard A. Denton	Contra Costa Water District
Ed Dunn	Castaic Lake Water Agency
Jim Elliot	Park Water Company
Steven E. Esmond	Brown and Caldwell
William R. Everest	Orange County Water District
Miles Ferris	City of Santa Rosa
Kathy Fletcher	California Environmental Protection Agency
Larry Fregin	South Coast Water District
Marty Friebert	Orange County Environmental Health
Richard Harris	WateReuse Association
Earle Hartling	Sanitation Districts of Los Angeles County
Rex Hime	California Business Properties Association
Ken Hoffmann	LifeSource Water Systems
Bob Hultquist	Department of Health Services
Peter Ingram	Redwood City
Keith Israel*	Monterey Regional Water Pollution Control Agency
Cecelia Jackson	Eastern Municipal Water District
Jolene Johnson	Kennedy/Jenks Consultants
Hossein Juybari	City of San Diego Water Department
Fawzi Karajeh	Department of Water Resources, Office of Water Use Efficiency
Roumiana Karakanova	City of Pasadena
Richard Katz	California State Water Resources Control Board
Patrick Keane	
Bob Kenton	Santa Clara Valley Water District
Luana Kiger	USDA, Natural Resources Conservation Service
Nancy King	Department of Water Resources
Keith Lewinger	Fallbrook Public Utility District
Suja J. Lowenthal	West Basin Municipal Water District
Laurie Luke	CALFED Bay-Delta Program
Gary R. Lynch	Park Water Company
Scott Lynch	CH2MHill
Rick Martin	Bureau of Reclamation
Jack Miller	San Diego County Department of Environmental Health
Richard Mills	State Water Resources Control Board
Jonas Minton	Department of Water Resources
Cliff Moriyama	California Business Properties Association
Rafael Mujeriego	Orange County Water District

Cheryl Muñoz	San Francisco Public Utilities Commission
Mansour M. Nasser	City of San Jose Municipal Water System
Art O'Brien	City of Roseville
Pieter Pijl	Mesa Consolidated Water district
John Plummer	Friends of Lake Merced
Robert Purzycki	BAVCO
Robert M. Reed	Boyle Engineering Corporation
William Robinson	Upper San Gabriel Valley Municipal Water District
Diana Robles	State Water Resources Control Board, Division of Clean Water Programs
Veronica Rodriguez	Court Reporter, Sylvia Becker & Associates, Inc.
H. Eric Schockman	University of Southern California
Marvin Shaw	Cadiz Incorporated
Frances Spivy-Weber	Mono Lake Committee
Jeffrey Stone	Department of Health Services
Kip Sturgeon	East Valley Water District
Peer Swan	Irvine Ranch Water
Gary Tegel	City of Newport Beach
Mark Tettemer	Central Basin Municipal Water District
Michael J. Truax	Eastern Municipal Water District
William T. VanWagoner	East Valley Water Recycling Project, Los Angeles Dept of Water and Power
Muriel Watson	Revolting Grandma's
Jennifer West	Geyer Associates
Meena Westford	Bureau of Reclamation, Southern California Area Office
Bob Whitley	WateReuse Association, California Section
John B. Withers	Santa Ana Regional Water Quality Control Board
Jennifer Wong	Department of Water Resources
Patrick Wright	CALFED Bay-Delta Program
Adeline M. L. Yoong	Water Replenishment District of Southern California
Ronald Young	Elsinor Valley Municipal Water District

1 unidentified person

* By telephone

2002 RECYCLED WATER TASK FORCE
LIST OF HANDOUT MATERIALS FOR 19 NOVEMBER 2002 MEETING

1. "Meeting Agenda, 2002 Recycled Water Task Force Fifth Meeting, Tuesday, November 19, 2002"

2. "2002 Recycled Water Task Force, White Paper of the Public Information, Education, and Outreach Workgroup on Better Public Involvement in the Recycled Water Decision Process," Draft, 17 November 2002

3. "2002 Recycled Water Task Force, Science and Health/Indirect Potable Reuse Workgroup Draft White Paper," 16 November 2002

4. "2002 Recycled Water Task Force, Plumbing Code/Cross Connection Control Workgroup Draft White Paper," 15 November 2002

5. "2002 Recycled Water Task Force, Funding/CALFED Coordination Workgroup Draft White Paper," 12 November 2002

6. "2002 Recycled Water Task Force, Economics Workgroup Draft White Paper," 18 November 2002

7. "2002 Recycled Water Task Force, White Paper of the Regulations and Permitting Workgroup," Rough Unedited Draft, 17 November 2002

8. "2002 Recycled Water Task Force, Proposal for Statewide Regulatory Consistency and Uniformity," November 2002, submitted by Jack Miller on behalf of the California Conference of Environmental Health Directors

State of California
Department of Water Resources
State Water Resources Control Board
Department of Health Services

2002 RECYCLED WATER TASK FORCE
FIFTH MEETING

Tuesday, November 19, 2002, 9:00 a.m. to 2:00 p.m.
South Ballroom B, Disneyland Hotel
1150 Magic Way, Anaheim, CA 92802

MEETING AGENDA

(Times are approximate)

9:00-9:10 ***Self-introduction of meeting attendees***

9:10-9:20 ***Approval of September 12, 2002 meeting minutes***

9:20-9:30 ***Task Force general business***

9:30-9:45 ***WateReuse Foundation and its role in water recycling***

9:45-12:10 ***White Paper Presentations:***

- *Public Information, Education and Outreach*
- *Science & Health/Indirect Potable Reuse*
- *Plumbing Code/Cross Connection Control*
- *Funding/CALFED Coordination*
- *Economics- Progress Report*

12:10-12:30 ***Break and Lunch Set-up***

12:30-1:30 ***White Paper Presentations-Continued:***

- *Regulations & Permitting White Paper and Expert Presentation*
  - *Lack of uniform interpretation of State standards*
  - *Incidental runoff*
  - *Permitting procedures*
  - *Water softeners and source protection*
  - *Jurisdictional conflicts*

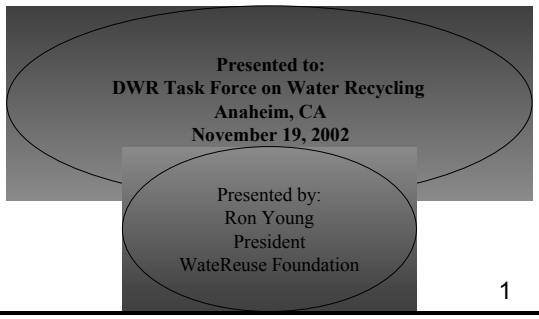
1:30-1:50 ***General discussion and public questions and comments***

1:50-2:00 ***Future meeting and strategy***

2:00 ***Adjourn***

PRESENTATION BY RON YOUNG

WateReuse Foundation: Advancing the Science of Water Recycling



1

WateReuse Foundation

- Founded in 1993 to:
  - Develop the Science & Technology Necessary to Support the Water Recycling Needs of the 21st Century

2

WateReuse Foundation

- Governed by a 9-Person Board
- Board Recently Voted to:
  - Revise & Streamline Research Business Plan;
  - Expand Research Committee to 20 Prominent Professionals from academia, government, utilities, consulting communities
- Revised Research Plan will be Published on Web Site Shortly
  - www.WateReuse.org
- Employ Full-Time Research Director

3

WateReuse Foundation

- Funded by USBR, CA State Water Resources Control Board, Subscribers
- Focused Exclusively on Reuse Research
- 2003 Budget will Exceed $2 million
- Received $1.05 Million from USBR on September 30
- Slated to Receive an Additional $2MM from USBR/Congress in FY-03

4

WRF's 11 Research Priority Categories

- Microbial Risk Assessment Methodologies
- Identify Reuse Criteria Protective of Public Health & Enable Flexibility & Efficient Use of Technologies
- Understanding Pathogen Inactivation Relationship & Performance Parameters for Treatment Processes
- Develop Program to Communicate Levels of Safety to Public/Policymakers
- Water Quality Standards for Chemical Constituents
- Establish Basis for Demonstrating Equivalent Treatment w/Alternative Processes for Pathogen Removal/Inactivation

5

Research Priorities Categories (cont'd)

- Ensure Recycled Water is Microbiologically Safe
- Maintain WQ in Reclaimed Water Storage & Distribution Systems
- Standardize Protocols for Field Testing of Recycling Equipment & Practices
- Monitoring Strategies to Verify Treatment/Disinfection Reliability
- Salinity Impact, Source Control, and Treatment Studies

6

Research Contract Awards -- 2002

- Investigate Effectiveness of Treatment Technologies to Destroy/Remove NDMA (Malcolm Pirnie)
  - Subcontract to UC-Berkeley ($120,000)
- Develop Analytical Methods for NDMA (City of Long Beach)
  - Subcontract to UCLA ($72,500)

7

Research Contract Awards -- 2002

- *Understanding Public Concerns & Developing Tools to Assist Local Officials in Planning Successful Potable Reuse Projects* (Resource Trends, Inc.)
- Rejection of Wastewater-Derived Micropollutants in High-Pressure Membrane Applications Leading to Potable Reuse (CO School of Mines)

8

Research Awards Pending

- Optimization of Filtration Flux Rate for Production of Title 22 Disinfected Tertiary Recycled Water (Monterey Regional Water Pollution Control Agency)
- NDMA Fate & Transport
  - Foundation's First Tailored Collaboration Project
  - Six Large CA Utilities Contributing $40,000 Each
  - West Basin is Leading Research

9

WRF Research Agenda -2002

- The Use of Bioassays/Chemical Measurements to Assess Removal of Endocrine Disrupting Compounds in Water Recycling (JWRTF)
- Assessment of the Environmental Fate of Selected Pharmaceuticals in Water Recycling (JWRTF)
- WRF, AwwaRF, WERF, NWRI, & CUWA Investing $525,000 in these two Projects

10

New and Pending Projects for 2002-2003

- Develop National Salinity Management Clearinghouse & Five-Year Research Program
- Assessing Methods for Achieving Brine Concentrate Disposal
  - a JWRTF Project
  - USBR Provided $250,000 in Funding
- Investigating Microbial Risk of Irrigating Crops with Recycled Water
- Support for Comparative Study of Recycled Water Irrigation of Fairway Turf

11

Projects for 2002-2003 (con't)

- Priority Projects Identified at June 2002 Foundation Conference:
  - Pathogen removal in reclamation plants (Sequel to Pomona Virus Study)
  - Developing Molecular Methods for Meaningful Detection of Pathogens
  - Salinity Management at Source
  - Effects of Non-Potable Water in Groundwater
  - Marketing Strategies for Recycled Water
  - Economic Analysis of Sustainable Water Use (Benefits and Costs)
  - Surrogate for measurement of Health Significant Organic Removal
  - Occurrence of Emerging Contaminants in Recycled Water

12

Projects for 2002-2003 (con't)

- "Tailored Collaboration" Projects with Southwest Florida Water Management District
  - Water Quality Study of Surface and Groundwaters in the Tampa Bay Area Not Influenced by Municipal Wastewater or Reclaimed Water Flows
  - Effective Attenuation of Biological and Chemical Constituents in Reclaimed Water Using UV and RO Treatment

13

Creation of National Data Base

- On January 1, Foundation will Initiate Development of a *National Data Base of Water Reuse Facilities*
- Probable Funding Partners Include:
  - SWRCB;
  - EPA's Office of Wastewater Management;
  - USBR
- Association will Maintain, Update Data Base
- Project will Yield Tremendous Benefits to Water Reuse Community

14

Relationships & Leveraging

- WRF is Secretariat for Joint Water Reuse Task Force
- Other Members are:
  - AwwaRF
  - WERF
  - NWRI
  - USBR

15

Relationships & Leveraging

- WRF is Founding Member of Global Water Research Coalition (GWRC)
- GWRC Consists of 12 national water research organizations in U.S., UK, Netherlands, Germany, France, S. Africa, & Australia
- Primary Objectives of GWRC are to:
  - Leverage Human Capital;
  - Leverage Financial Resources; and
  - Reduce or Eliminate Duplication of Effort

16

New Relationship & Leveraging

- Currently Exploring Potential for Multi-Year Joint Research Effort with the Southwest Florida Water Management District (SWFWMD)
- Foundation and SWFWMD Would Co-Fund Projects 50:50
- Relationship will be Initiated in 2003 by Co-Funding two Tailored Collaboration Projects Related to Indirect Potable Reuse

17

Leveraging Resources

- Over Past Two Years, for Every Federal or State $ Expended, Foundation Obtained $2.55 from Other Sources
- Goal in 2003 will be to Leverage 3:1
- 25 Cents Invested by SWRCB in WRF Will buy $1 in Research

18

PRESENTATION BY ANE DEISTER

State of California
Department of Water Resources
State Water Resources Control Board
Department of Health Services

Public Information, Education, and Outreach Workgroup
of the
2002 Recycled Water Task Force
on
Better Public Involvement
In the
Recycled Water Decision Process
Draft White Paper Presentation
Ane Deister

1

Public Information, Education and Outreach

- Charge

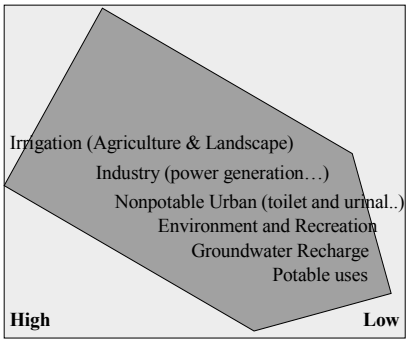
The main charge of the Public Information, Education and Outreach Workgroup is to address issues related to public perception and acceptance, public education programs, and social equity in the distribution of recycled water.

2

Opportunity

- Identify ways to:
  - Get public and other affected stakeholders support
  - Learn what the public/dec. mkr. issues are
  - Communicate effectively
  - Listen effectively
  - Involve public early
  - Incorporate public issues within
  - Champion use of recycled water

3



Public Acceptance to Recycled Water Use in California

4

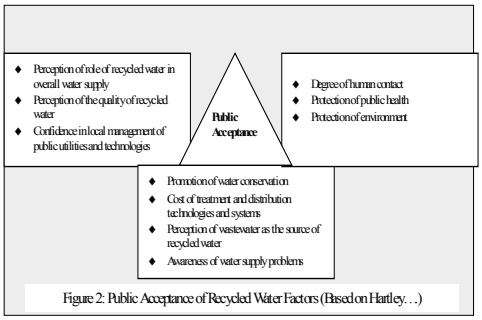


Figure 2: Public Acceptance of Recycled Water Factors (Based on Hartley…)

5

PUBLIC PERCEPTION ISSUES

Over 200 water recycling projects operate in California today. This high count illustrates the public's acceptance and support for water recycling. Despite this, some major projects have failed…..Why?

6

PUBLIC PERCEPTION ISSUES

There are a variety of specific issues that may arise when recycled water projects are introduced:

- water quality – pertains to the public health concern
- economics – how much will the program cost and who will pay for it, and how much will the recycled water cost the customer
- water supply – pertains to the growth issue
- environmental justice
- general opposition – belief that recycled water should be an option of last resort.

7

PUBLIC PERCEPTION ISSUES

Case Studies

- San Gabriel Valley Groundwater Recharge Project.
- Dublin San Ramon Services District's Clean Water Revival Project.
- City of San Diego's Water Repurification Project.
- City of Los Angeles Department of Water and Power's East Valley Water Reclamation Project.

Finding

- The label "Toilet to Tap" cannot be avoided, emerging unknown contaminants remain a concern, and indirect potable reuse projects can be vulnerable to political agendas.
- Projects are more difficult to implement after they have been chosen and planned without sufficient public participation.

8

PUBLIC ENGAGEMENT

public participation is important and needs to be part of the decision making process. Within this context, recycled water can and should play an important role, but it is also within this context that advocates of recycled water must be able to clearly define and show that their product meets all interests, public health, environmental health, and economic viability, in the use proposed.

Public Notice Requirements Under CEQA
Public Notice Requirements Under NEPA

Value-Based Decision-Making Model

9

Values based decision making

- The public is capable of making wise and prudent decisions
- Public involvement throughout the process
- Full range of interested and affected parties should be included
- Identify common interests and full range of options
- Approach in an integrated manner
- Go slow before you know—precautionary approach
- Transparency in evaluation process and decision making—needed resources are available.
- Project analysis (science, economics, environmental and social impacts) should be robust
- The project is responsive to the public process

10

PUBLIC ENGAGEMENT

Case Studies

- **Orange County Water District and Orange County Sanitation District Groundwater Replenishment System**
- **Personal Studies**

Finding

The best way to approach the public is with an open mind. By following the value-based decision-making model, the results may take more time, but in the end more people will be satisfied and the resulting project is more likely to be successfully implemented.

11

PLANNING RECYCLED WATER

Present the water recycling option based on side-by-side comparison of the various water supplies along with the cost and benefits of the various sources.

Reliability of Recycled water is an important selling factor.

Case studies:

Serrano Development
Monterey County Water Recycling Projects

12

PUBLIC ENGAGEMENT

Case Studies

- **Orange County Water District and Orange County Sanitation District Groundwater Replenishment System**
- **Personal Studies**

Finding

The best way to approach the public is with an open mind. By following the value-based decision-making model, the results may take more time, but in the end more people will be satisfied and the resulting project is more likely to be successfully implemented.

13

Public Policy and Politics

- Policy Hurdles
  - State support for water recycling ?
    - Local health offices and other regulatory agencies roles?
    - City and county planning agencies
- Political Hurdles
  - "Top-Down" state support for recycling
  - Homegrown local support
  - Coordinate.. State and local planning processes
  - Elected officials and their role
  - Politics of water
  - Recycled water… option in the mix of available options
  - Media and politicians

14

Action at the State Level

* A state media campaign
* School curriculum on water
* Consistency among agencies and local governments

15

PRESENTATION BY FAWZI KARAJEH

State of California
Department of Water Resources
State Water Resources Control Board
Department of Health Services

Science and Health/Indirect Potable Reuse Workgroup of the 2002 Recycled Water Task Force

Draft White Paper Presentation

Fawzi Karajeh
November 19, 2002

1

Task Force Workgroups

- Science and health / Indirect Potable Reuse
- Public Information, Education and Outreach
- Regulations and Permitting
- Funding / CALFED Coordination
- Plumbing Code/Cross Connection Control
- Economics

2

Science & health / Indirect Potable Reuse Workgroup

Charges

The main charge is to examine the scientific basis for current reuse standards, address the importance of emerging issues of scientific and public health concern, identify any areas of research needs, and substantiate the need to reconvene the California Indirect Reuse Committee and make any other recommendations to remove impediments to water reuse.

Issues

- **Groundwater recharge**
- **Surface water augmentation**
- **Applied research on wastewater reuse by academic institutions**
- **Pharmaceutical and trace elements**
- **Construction, design, operation & maintenance**
- **Testing and certification to insure safe use**
- **Epidemiological studies update to provide current assessment of the science regarding public health and water reuse**

3

- ***Water Recycling***

The process of treating wastewater to produce "recycled water" for beneficial uses, its transportation to the place of use and its actual use.

"Recycled water" however, is defined in the California Water Code to mean "water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur."

4

Water Recycling accomplishes two fundamental functions:

(1) the treated effluent is used as a water resource for beneficial purposes, and

(2) it prevents pollution and maximizes resources by redirecting nutrient enriched treated wastewater from discharging into streams and lakes and onto beaches for other beneficial uses.

5

The foundation of water recycling is built upon three principles:

(1) Providing reliable treatment of wastewater to meet strict water quality requirements for the intended reuse application,

(2) Protecting public health, and

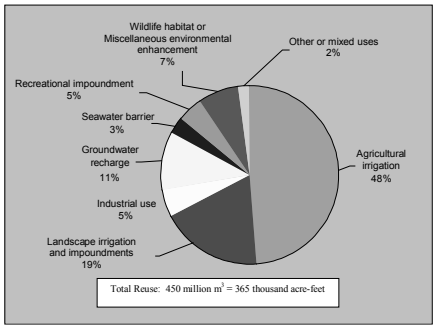
(3) Gaining public acceptance and support.

6

Through integrated water resources planning, the use of recycled water may provide sufficient flexibility to allow a water agency to respond to short-term needs as well as increase the reliability of long-term water supplies.

7

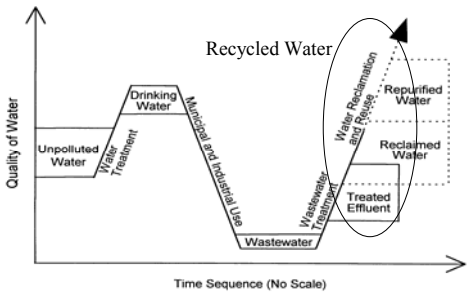
I. Recycling in California



Wastewater reclamation and reuse in California (2001 SWRCB/OWR database)

8

II. Spectrum of reclaimed water quality



Water quality changes during municipal uses of water in a time sequence and the concept of water recycling (Asano, T., *Water Science & Technology*, Vol. 45, No. 8, p. 29, 2001.)

9

II. Spectrum of reclaimed water quality

Health risk assessment for recycled water use

Despite a long history of water reuse in California, the question of *safety* of recycled water use is still difficult to define and delineation of *acceptable* health risks has been hotly debated.

10

II. Spectrum of reclaimed water quality

•Health risk assessment for recycled water use

Four water quality factors are of particular concern:
(1) microbiological quality,
(2) total mineral content (e.g., total dissolved solids),
(3) presence of toxicant of the heavy metal type, and
(4) the concentration of stable organic substances.

11

II. Spectrum of reclaimed water quality
Microbiological

Health risk assessment for recycled water use

The U.S. EPA Surface Water Treatment Rule (SWTR) (U.S. EPA, 1989) defines an acceptable risk as less than or equal to one pathogen-derived infection per 10,000 population per year from use of a public water supply.

Therefore, if a 10^{-4} annual risk of infection (less than or equal to one infection per 10,000 population per year) is set as an acceptable risk for recycled water use, the reliability can be calculated as the percent of time that infection risk due to exposure to enteric viruses in recycled water is less than the acceptable risk.

12

II. Spectrum of reclaimed water quality Chemical

Health risk assessment for recycled water use

Recent studies in environmental toxicology and pharmacology have revealed potential long-term health risks associated with chemical compounds such as disinfection byproducts (DBPs), pharmaceutically active compounds (PhACs), pesticides, and personal care products (PCPs) at low concentrations (orders of ppb and ppt).

Those trace organic compounds along with some inorganic compounds such as arsenic and hexavalent chromium found in reclaimed water are of special concern for human and ecological health risk.

13

Science & health / Indirect Potable Reuse Workgroup

Issues
- **Groundwater recharge**
- **Applied research on wastewater reuse by academic institutions**
- **Pharmaceutical and trace elements**
- **Epidemiological studies update to provide current assessment of the science regarding public health and water reuse.**
- **The need to reconvene the California Indirect Reuse Committee.**
- **Other issues (Water Softeners, One Molecule Rule,..)**

14

Issues
- **Groundwater recharge**

Finding
- **State of California has been in the forefront of providing regulatory guidance in groundwater recharge with reclaimed wastewater. The State of California Interagency Water Reclamation Coordinating Committee has conducted the Scientific Advisory Panel during 1986-87 and issued the *Report of the Scientific Advisory Panel on Groundwater Recharge with Reclaimed Wastewater* in November 1987.**
- **Based on the Scientific Advisory Panel Report, groundwater recharge criteria with reclaimed wastewater were drafted by the Department of Health Services in late 1980s and the Draft Criteria have been updated several times with the most recent version issued in April 2001.**

15

Issues
- **Groundwater recharge**
- **Applied research on wastewater reuse by academic institutions**
- **Pharmaceutical and trace elements**
- **Epidemiological studies update to provide current assessment of the science regarding public health and water reuse**

Finding
- **The WG request the Task Force to recommend to the Legislature that more state funding is needed for research.**

16

- **Based on the overall discussion on research issues, this recommendation could be expanded to include the following themes:**
  - A need for long-term sustained research funding
  - Research on water recycling treatment, testing and monitoring methods and development of innovative/emerging technologies
  - Flexibility to study emerging issues that are constantly arising
  - Long-term research on fundamental scientific principles and mechanisms addressing technology, public and environment health that generate quality biophysical and, engineering-oriented knowledge that will be a solid foundation for public policy and regulation of water recycling
  - Preparation of well-educated practitioners on water recycling production, quality, and use.

17

Science & health / Indirect Potable Reuse Workgroup

- **Issues**
- **Groundwater recharge**
- **Applied research on wastewater reuse by academic institutions**
- **Pharmaceutical and trace elements**
- **Epidemiological studies update to provide current assessment of the science regarding public health and water reuse.**
- **The need to reconvene the California Indirect Reuse Committee.**

18

… the need to reconvene the California Indirect Reuse Committee.

Finding

- **After extensive discussions among the Workgroup members, the consensus of the workgroup was to recommend not to convene a statewide science-based panel to address indirect potable reuse.**
- **The State of California Department of Health Services should be able to make informed and scientific determinations on issues related to indirect potable reuse based on the following publications.**
  - **Issues in Potable Reuse –NRC, 1998.**
  - **The California Potable Reuse Committee Report, 1996.**
  - **Report of the Scientific Advisory Panel, 1987.**

19

Science & health / Indirect Potable Reuse Workgroup

- **Issues**
- **Groundwater recharge**
- **Applied research on wastewater reuse by academic institutions**
- **Pharmaceutical and trace elements**
- **Epidemiological studies update to provide current assessment of the science regarding public health and water reuse.**
- **The need to reconvene the California Indirect Reuse Committee.**
- **Other issues (Water Softeners, One Molecule Rule,..)**

20

Other issues are being evaluated in conjunction with other workgroups:

- **Water Softeners (Bill Everest and Rafael Mujeriego have authored an issue paper)**
- **Soil Aquifer Treatment Study (Hoover Ng has prepared a memorandum on total organic carbon removal efficiencies from soil aquifer treatment)**
- **One Molecule Rule (Keith Lewinger prepared a write-up on this issue)**

21

PRESENTATION BY BILL JACOBY

Funding/CALFED Coordination Subgroup

Draft White Paper
Highlights

1

Outline

- Local Funding Sources & Studies
- State Funding
  - SWRCB
  - DWR
- Federal USBR
- Recommendations

2

Background

- Water recycling major part of CALFED Programmatic ROD
- So Cal. Comprehensive Water Reclamation & Reuse Study
- S.F. Bay & Sac.-S. J. area water recycling
- Case studies to advance safe use of recycled water

3

Local Role in Funding

- Operating agency contribution
- Local pay-for performance programs
  - MWD's LRP
  - SDCWA's RWDF
  - Matrix developed to show various sources

4

Marketing Projects

- Considered with other water resource options
- Need survey of current marketing efforts
- Realize local agencies must consider recycling as one of many options

5

Regional Recycling Studies

- A method to prioritize funding regionally
- Types of studies
  - So. Cal Comprehensive Water Reclamation & Reuse Study
  - Bay Area Regional Water Recycling Program
  - SDCWA Reg. Recycled Water System
  - South Bay Water Recycling Long Term Master Plan

6

State & Federal Funding

- Supplemental to local funding
- SWRCB & DWR programs within CALFED
- Federal USBR funding through Title XVI
- Each program has a different application process with no coordination.

7

SWRCB Program

- Continuous application process
- Funds for projects that increase water supply
- Project construction and O & M
- Facilities planning studies

8

DWR

- Competitive funding process
  - Issues RFP
  - Projects rated based on predetermined criteria
  - Projects with the greatest State benefit selected

9

USBR

- Title XVI Projects
- Planning and construction
- Projects must be authorized
- Must receive annual appropriation

10

Recommendations

- Revised funding procedure to be developed:
  - Water Recycling Funding Coordination Committee
  - Committee to use quantifiable objectives
  - Committee to work cooperatively with SWRCB & DWR
  - Maintain a listing of state & federally funded projects

11

Recommendations

- Regional studies to be considered in prioritization of projects
- Public information to be provided by funding agencies
- SWRCB & USBR to perform analysis of past recycling performance & projection of future performance and funding needs
- Funding for DWR's water recycling, tech. Assistance & research – work with locals

12

PRESENTATION BY KATHY FLETCHER

Regulations and Permitting Workgroup White Paper

2002 Recycled Water Task Force
19th November 2002

Kathy Fletcher
Deputy Secretary for External Affairs
California Environmental Protection Agency

Chair
Regulations and Permitting Workgroup

1

Workgroup Charge

- Review the laws, regulations, and regulatory agency practice pertaining to recycled water
- Suggest amendments to remove the impediments to the safe use of recycled water
- Propose uniform regulatory application of standards throughout the state

2

Issues of Focus

- Lack of uniform interpretation of state standards
  - Lead: Bob Castle
- Regulation of incidental runoff
  - Lead: Cindy Megerdigian
  - Presenter: Kirk Bone
- Permitting procedures
  - Lead: Jerry Brown
- Water softeners and source protection
  - Leads: Norris Brandt, Bill Everest, Rafael Mujeriego
- Local jurisdictional conflicts
  - Kathy Fletcher

3

Jurisdictional Conflicts

- Multiple parties involved
  - Recycled water producers
  - Recycled water distributers
  - Retail purveyors
  - Potable water suppliers
  - Customers (recycled water users)

4

Institutional Relationship

- Contractual/legal relationship
- Issues
  - Responsibilities
  - Allocation of project costs and revenues
  - Impacts from lost potable revenue/stranded costs
  - Liabilities

5

Current Law

- Service Duplication Act
  - Public Utilities Code §§ 1501-1507
  - Service by one entity in the established service area of another
  - Compensation for stranded costs
- Health & Safety Code § 6512
  - Authorizes sanitary districts to supply recycled water service in service of water purveyor under certain conditions

6

Conflict Resolution Procedure

- Water Code §§13575 et seq.
  - Conflict resolution procedure between agencies to facilitate use of recycled water
  - Mediation if failure to resolve conflict
  - Untested

7

PRESENTATION BY BOB CASTLE

2002 Recycled Water Task Force
November 19, 2002

Uniform Statewide Recycled Water Criteria

Bob Castle, Water Quality Manager
Marin Municipal Water District
Co-Chair WateReuse Legislative / Regulatory Committee

1

Recycled Water Regulations in California are a Shared Responsibility of Two Agencies

- Public Health issues are handled by the California Department of Health Services (DHS) administered by 21 Districts.
- Permitting of recycled water projects is handled by the 12 different Regional Water Quality Control Boards (RWQCBs) whose primary focus involves regulation of liquid waste discharges.

2

Organization of DHS and RWQCBs

- Within the DHS, water recycling is handled by the Division of Drinking Water and Environmental Management. Field staff reports directly to Sacramento.
- Each RWQCB is controlled by independently appointed boards which reflect different hydrologic conditions and regional perspectives.

3

Why Strive for Consistency?

- Inconsistent regulation of water recycling by state and local officials leads to confusion and uncertainty in how to design and manage water reuse systems and appears to have lead to overly restrictive regulation and added costs, creating an obstacle to achieving the full potential for water reuse.

4

California Legislature Acts to Promote Consistency

- In 1993, AB 704 was enacted to break the log jam of recycled water projects waiting for approval and to promote the concept of statewide uniform recycling criteria.
- Empowered DHS to address unique or new recycled water uses on a case by case basis.
- Limited the authority of a city or county to adopt or enforce regulations involving recycled water beyond that promulgated in the DHS statewide uniform recycling criteria.

5

DHS Shall Establish Uniform Statewide Recycling Criteria

Water Code Sections 13520-13522

- "The State Department of Health Services shall establish uniform statewide recycling criteria for each varying type of use of recycled water where the use involves protection of public health."
- "The use of recycled water in accordance with the uniform statewide recycling criteria... does not cause, constitute, or contribute to, any form of contamination, unless the department or the regional board determines that contamination exists."

6

Local Health Officers Duties

Health & Safety Code 116800 and 116805

- "Local health officers may maintain programs for the control of cross connections by water users, within the users premises, where public exposure to drinking water contaminated by backflow may occur."
- "The programs may include inspections within water users premises for the purpose of identifying cross-connection hazards and determining appropriate backflow protection."

7

Local Health May Only Collect Fees If Water Supplier Agrees and May Only Conduct Programs In Accord with DHS Regulations

Health & Safety Code 116800 and 116805

- "Local health officers may maintain programs in cooperation with water suppliers…and with the consent of the water supplier, may collect fees"
- "At the discretion of the water supplier, the fees collected from the water supplier by the local health officer may be passed through to water users."
- "Programs authorized under this section and Section 116800 shall be conducted in accordance with backflow protection regulations adopted by the department."
- Local health agencies are not empowered to create their own rules and regulations for recycled water.

8

DHS Responsibilities May Only Be Delegated with Consent of Water Supplier, DHS, and County Government

Water Code Section 13554.2

- "With the consent of the person or entity proposing the use of recycled water, the State Department of Health Services may delegate all or part of the duties that department performs…to a local health agency authorized by the board of supervisors to assume these duties,…"

9

Statewide Uniform Criteria Also Applies to Building Codes

- Codes are intended to be consistent throughout the state unless there are material reasons to change them through a public process.
- "The governing body of a city or county, before making any modifications or changes pursuant to Section 17958.5, shall make an express finding that such modifications or changes are reasonably necessary because of local climatic, geological or topographic conditions."
- Findings must be in public record and filed with the CA Building Standards Commission.

10

Legislative Actions to Discourage Local Code Changes

- The Legislature has restricted and discouraged local jurisdictions from restricting desirable activities through abusive code changes. Examples include:
- Joint living and working quarters
- Solar Energy Systems
- Passive Solar Systems
- Refer to Health & Safety Code Sections 17958.7 through 17959.3

11

Typical Elements of Local Health Regulation of Recycled Water

- Review of plans for irrigation and other recycled water projects which may duplicate regulatory oversight by DHS and by local building code enforcement authority.
- Design requirements for recycled water systems which may be more restrictive than required by CA Plumbing Code, or DHS Title 22 Regulations

12

Misinterpretation of DHS Regulations

- DHS Water Recycling Criteria (Title 22) adopted in 2001, requires annual inspections and cross connection testing every 4 years for dual plumbed systems.
- "Dual plumbed system" or "dual plumbed" means a system that utilizes separate piping systems for recycled water and potable water within a facility and where the recycled water is used for either of the following purposes:
  a) To serve plumbing outlets (excluding fire suppression systems) within a building or
  (b) Outdoor landscape irrigation at individual residences.
- At times, DHS and local health agencies have misapplied this requirement to all sites that use both potable and recycled water.

13

Shut-Down Testing

- Can be very invasive to businesses that need to operate on a 24/7 basis.
- Some test procedures require water systems to be shut down for up to 48-hours.
- Statewide regulations authorize inspections "for the purpose of identifying cross-connection hazards and determining appropriate backflow protection".
- Shut-down testing is certainly justified when a facility is converted from potable to recycled water, or when construction has occurred that could not have been inspected in a different manner, or any time the customer requests it.
- Rarely applied to sites with non-potable wells or to commercial and industrial sites with toxic chemicals.

14

Piping Separation Requirements

California Waterworks Standards, Title 22 CCR, Section 64630

- DHS regulations require potable water mains to be installed 10 feet away and 1 foot above sewers and sewage force mains.
- The reason for this requirement, is that sewers often leak and the separation attempts to provide a relatively clean zone around the potable pipes so that repairs can be made with reduced potential for contamination to potable water.
- For piping systems that have tight joints, such as welded steel, the separation required is 4 feet.
- This criteria only applies to waterworks piping and does not apply to piping on private property.

15

Downstream of the Water Meter

- Upstream of the water meter, DHS regulations apply. Downstream of the water meter, the California Plumbing Code applies.
- There are no separation requirements in the California Plumbing Code. Potable water lines and sewage lines may be installed in a common trench. Is this a concern?
- No. Because the pipe construction and operating conditions are different. Either system may be shut down or isolated for repair and the smaller diameter piping is both stronger and has tighter joints than those of public sewers and water distribution mains.

16

If Plumbing Code Allows Sewage and Water in Common Trench, Why Do Some Regulators Try to Enforce Separation of Recycled Water?

- Basically an appropriate requirement has been dragged to the downstream side of the meter to a place it doesn't belong.
- Regulators and many Recycled Water Agencies are familiar with the DHS rules for the public water distribution system, but often lack knowledge about building codes.
- Local health agencies are not authorized to overrule Plumbing Code unless they can demonstrate that the code is inadequate because of climate, topography, or geology.

17

The Florida Example

- Reuse is an integral part of water resources, wastewater, and ecosystem management.
- Florida Legislature has established "The encouragement and promotion of reuse as a formal state objective. Reuse coordinator is responsible for success of program.
- To instill the value of water recycling, the wording "Use it again Florida" appears at the bottom of every page of regulation dealing with water reuse.
- This is reinforced by widespread use of the slogan "More protection, less process."

18

White Paper Recommendations

- SWRCB should provide oversight to the permits issued by RWQCBs for consistency. Empower key person (ombudsman) to facilitate recycling and arbitrate conflicts.
- DHS needs to improve training of field staff about uniform statewide criteria.
- Conduct a legal review to determine what authority exists for local agencies to enforce regulations that are more stringent than Titles 17 and 22.

19

White Paper Recommendations

- Implement concept of statewide uniformity practiced by building codes, where uniform statewide recycling criteria may only be changed based on proof that they are deficient based on local difference of climate, geology, topography, or other defined criteria.
- Investigate the programs in Florida to determine if concepts should be adopted in California.

20

PRESENTATION BY KIRK BONE

Incidental Runoff

Regulations and Permitting Workgroup

November 2002

1

Background

- Recycled water used for irrigation
- Permits prohibit runoff
- Runoff difficult to prevent
- Ponds filled with recycled water may overflow in storm events
- Non-uniform enforcement of overflow by Regional Boards
  - De Minimus
  - Violation
- Can be considered wastewater spill

2

Examples/Case Histories

- Golf Courses Statewide (over 150)
- El Dorado Irrigation District
- City of Roseville
- Sonoma County Water Agency

3

Past Recommendations

- Designate recycled water as a resource rather than waste
- Separate classification for recycled water
- Emphasize inherent benefits of recycled water if not considered a waste
- Recognition of recycled water as a resource

4

Current Recommendation

- In regards to incidental runoff, treat recycled water the same as potable or storm water
  - Prepare Statewide Regulation/General Permit
  - Provide scientific evidence
  - Allow discharge under specific requirements
  - Legal review of Federal and California EPA and other regulations

5

PRESENTATION BY JERRY BROWN

Permitting Procedures –
Regulations and Permitting Workgroup

Objective:

Identify impediments related to permitting a recycled water project.

Background:

- Various existing legislative sections address permitting.
- Timeliness of review minimally addressed
- Local land use and Building Department authority exemptions

Permitting Procedures –
Regulations and Permitting Workgroup

Previous Related Work:

- Establish Policy guidelines – DHS "Purple Book"
- Regional Boards streamline review process – practices improved but not applied uniformly
- Increase DHS staffing – legislative change
- Streamline SRF loan funding process – continuously improving
- Local health agency staffing – general improvement

Permitting Procedures –
Regulations and Permitting Workgroup

Recent Site Specific Examples:

- Local permitting of recycled water storage tank
- General coordination and timing issues
- User commitments exceed potable water

Permitting Procedures –
Regulations and Permitting Workgroup

Preliminary Recommendations:

- Continue updates of DHS "Purple Book"
- Clarify local land use and planning exemptions for recycled water projects
- Clarify requirements for Engineering Reports
- Provide State and Local tax incentives - offset cost of using recycled water
- The RWQCB's should:
  - be more involved in early project stages
  - assign experts to expedite review and provide consistency
  - concurrently develop basin plans while permitting
- The SWRCB should increase oversight of RWQCB's in recycling matters